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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/733,718	12/08/2000	Donald C. Abbott	TI-29679	2496

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EXAMINER

CAO, PHAT X

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 03/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/733,718

Applicant(s)

Abbott et al.

Examiner

Phat X. Cao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Feb 11, 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above, claim(s) 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 20) ☐ Other:

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DETAILED ACTION

Election/Restriction

1. Applicant's election of Group 1, claims 1-16 in Paper No. 4 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Specification

2. The disclosure is objected to because of the following informalities:
on page 18, line 23, "609" should be changed to "409"
line 24, "610" should be changed to "410".
Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 7, a phrase "selective areas having boundaries of loose tolerance" is unclear.

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Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 5 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al (US. 5,767,574).

Kim, in Figs. 1 and 5, discloses a lead frame for use in the assembly of integrated circuit chips, comprising: a base metal structure 51 of copper having an adherent layer 52 of nickel covering the base metal 51; an adherent film 53 of palladium on the nickel layer 52; and an adherent layer 54 of palladium on the palladium film 53, covering all areas of the lead frame including areas which are suitable for bonding wiring attachment and solder attachment; wherein the base metal 51 has a thickness of 0.1 to 3.0 mm (column 3, lines 19-21), the nickel layer 52 has a thickness of 0.1 to 2.0 um and the palladium film 53 has a thickness of 0.005 to 0.05 um (column 3, lines 23-25).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4, 6, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al (US. 5,767,574).

With respect to claim 4, Kim, in column 1, lines 60-67 through column 2, lines 1-3 and related figure 3, further teaches the obviousness of forming the nickel layer being a stack consisting of a nickel layer 32 in the thickness range of 5 u-inches, plated onto the base metal 31, followed by a palladium/nickel layer 33 in the thickness range of 3 u-inches, followed by a nickel layer 34. Such structures would have been obvious because according to Kim, it is known for preventing the copper atoms from diffusing through the nickel layer (column 1, lines 60-62).

With respect to claim 6, Kim further teaches that the palladium layer 54 has a thickness of 0.1 um (column 3, lines 45-46) which is approximately equal to 90 nm as claimed.

With respect to claim 10, it would have been obvious forming the solder attachment comprising materials selected as claimed because these materials are well known in the art for using as the solder attachment.

With respect claim 11, process limitations (reflow temperature compatible with wire bonding temperatures and molding temperatures), do not carry weight in a claim drawn to structure. In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985).

8. Claims 7-8 and 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al (US. 5,767,574) in view of Tsuji et al (US. 5,521,432).

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With respect to claims 7-8, Kim does not disclose that the palladium layer 54 covers selective areas having boundaries of loose tolerance.

However, Tsuji (Fig. 9) teaches the obviousness of forming palladium layer 21 covers selective areas having boundaries of loose tolerance. Accordingly, it would have been obvious to modify the palladium layer 54 of Kim with the structures as set forth above, because according to Tsuji, such modification would provide the benefits of easily bending the leads and preventing the leads from being in contact with each other (column 4, lines 65-67 through column 5, lines 1-10). It is noted that process limitation in claim 8 (providing visual distinction) does not carry weight in a claim drawn to structure. In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985).

With respect to claims 12-16, Tsuji further teaches the obviousness of forming a lead frame comprising a chip mount pad for an integrated circuit chip and a plurality of lead segments, each segment having a first end near the mount pad and a second end remote from the mount pad; forming bonding wires 5 interconnecting the chip and the first ends of the lead segments by wire bonding; and encapsulation resin material 6 surrounding the chip, bonding wires and the first ends of the lead segments, while leaving the second ends of the lead segments exposed. Accordingly, it would have been obvious to include in the semiconductor lead frame of Tsuji with the structures as set forth above because such structures are well known for forming an IC package.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phat X. Cao whose telephone number is (703) 308-4917. The Examiner

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can normally be reached on Monday through Thursday. If attempts to reach the Examiner by telephone are unsuccessfully, the Examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. Group 2800 fax number is (703) 308-7722 or (703) 308-7724.

PC
March 21, 2002



PHAT X. CAO
PRIMARY EXAMINER